

# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/DK2004/000456

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 C12P19/16

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)  
IPC 7 C12P C12N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)  
EPO-Internal, BIOSIS, EMBASE, WPI Data, PAJ, Sequence Search

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P, X	WO 03/068976 A (VIKSOE-NIELSEN ANDERS ; PEDERSEN SVEN (DK); NOVOZYMES AS (DK); OLSEN H) 21 August 2003 (2003-08-21) the whole document	1-27
X	WO 02/068589 A (DIVERSA CORPORATION) 6 September 2002 (2002-09-06)	25-27
Y	SEQ ID NO:52, 63 figure 16	1-24
Y	EP 0 171 218 A (GENENCOR INC) 12 February 1986 (1986-02-12) cited in the application the whole document	1-24
Y	US 4 009 074 A (WALON RAOUL GUILLAUME PHILIPPE) 22 February 1977 (1977-02-22) cited in the application the whole document	1-24

-/--

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

\* Special categories of cited documents:

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the International filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \* & \* document member of the same patent family

Date of the actual completion of the international search

9 September 2004

Date of mailing of the international search report

21/09/2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Schmitz, T

## INTERNATIONAL SEARCH REPORT

International Application No

T/DK2004/000456

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	<p>ITKOR P ET AL: "NUCLEOTIDE SEQUENCE OF THE RAW-STRACH-DIGESTING AMYLASE GENE FROM BACILLUS SP. B1018 AND ITS STRONG HOMOLOGY TO THE CYCLODEXTRIN GLUCANOTRANSFERASE GENES"</p> <p>BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS, ACADEMIC PRESS INC. ORLANDO, FL, US, vol. 166, no. 2, 30 January 1990 (1990-01-30), pages 630-636, XP000085858 ISSN: 0006-291X the whole document</p>	1-24
Y	<p>DEL-RIO G ET AL: "Did cyclodextrin glycosyltransferases evolve from alpha-amylases?"</p> <p>FEBS LETTERS, ELSEVIER SCIENCE PUBLISHERS, AMSTERDAM, NL, vol. 416, no. 2, 1997, pages 221-224, XP002256835 ISSN: 0014-5793 abstract page 224</p>	1-24
A	<p>US 4 316 956 A (LUETZEN NIELS W) 23 February 1982 (1982-02-23) the whole document</p>	
A	<p>JANECEK STEFAN ET AL: "Relation between domain evolution, specificity, and taxonomy of the alpha-amylase family members containing a C-terminal starch-binding domain."</p> <p>EUROPEAN JOURNAL OF BIOCHEMISTRY, vol. 270, no. 4, 20 February 2003 (2003-02-20), pages 635-645, XP002255837 ISSN: 0014-2956 abstract page 636, left-hand column, line 15 - line 45 table 2 figure 4 page 641, left-hand column, last paragraph - right-hand column, last paragraph</p>	

-/--

# INTERNATIONAL SEARCH REPORT

International Application No

PCT/DK2004/000456

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>SOUTHALL S M ET AL: "The starch-binding domain from glucoamylase disrupts the structure of starch"  FEBS LETTERS, ELSEVIER SCIENCE PUBLISHERS, AMSTERDAM, NL,  vol. 447, no. 1,  19 March 1999 (1999-03-19), pages 58-60,  XP004259394  ISSN: 0014-5793  the whole document</p>	
A	<p>PARK Y K ET AL: "ALCOHOL PRODUCTION FROM VARIOUS ENZYME CONVERTED STARCHES WITH OR WITHOUT COOKING"  BIOTECHNOLOGY AND BIOENGINEERING, vol. 24, no. 2, 1982, pages 495-500,  XP002255838  ISSN: 0006-3592  the whole document</p>	
A	<p>MACGREGOR E A ET AL: "RELATIONSHIP OF SEQUENCE AND STRUCTURE TO SPECIFICITY IN THE ALPHA-AMYLASE FAMILY OF ENZYMES"  BIOCHIMICA ET BIOPHYSICA ACTA, AMSTERDAM, NL,  vol. 1546, no. 1, 2001, pages 1-20,  XP001008841  ISSN: 0006-3002  the whole document</p>	
A	<p>DATABASE SWALL 'Online!  1 November 1996 (1996-11-01),  LIN, L. ET AL.: "alpha-amylase (EC 3.2.2.1)."  XP002255839  retrieved from EBI  Database accession no. Q59222  abstract</p>	
A	<p>KANEKO AKIHIRO ET AL: "Molecular cloning and determination of the nucleotide sequence of a gene encoding an acids-stable alpha-amylase from Aspergillus kawachii"  JOURNAL OF FERMENTATION AND BIOENGINEERING, SOCIETY OF FERMENTATION TECHNOLOGY, JP,  vol. 81, no. 4, 1996, pages 292-298,  XP002256177  ISSN: 0922-338X  the whole document</p>	

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/DK2004/000456

## Box No. I Nucleotide and/or amino acid sequence(s) (Continuation of item 1.b of the first sheet)

1. With regard to any nucleotide and/or amino acid sequence disclosed in the International application and necessary to the claimed invention, the international search was carried out on the basis of:

a. type of material

☒

a sequence listing

☐

table(s) related to the sequence listing

b. format of material

☒

in written format

☒

in computer readable form

c. time of filing/furnishing

☒

contained in the international application as filed

☒

filed together with the international application in computer readable form

☐

furnished subsequently to this Authority for the purpose of search

2. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

3. Additional comments:

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

WIPO/DK2004/000456

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 03068976	A	21-08-2003	WO 03068976 A2	21-08-2003
WO 02068589	A	06-09-2002	CA 2438205 A1	06-09-2002
			CA 2438884 A1	06-09-2002
			EP 1370674 A2	17-12-2003
			EP 1392815 A2	03-03-2004
			WO 02068589 A2	06-09-2002
			WO 02068597 A2	06-09-2002
			US 2003170634 A1	11-09-2003
			US 2003125534 A1	03-07-2003
			US 2003138786 A1	24-07-2003
			US 2004018607 A1	29-01-2004
			WO 02092802 A1	21-11-2002
			US 2003013172 A1	16-01-2003
EP 0171218	A	12-02-1986	AT 95837 T	15-10-1993
			AU 587984 B2	07-09-1989
			AU 4523385 A	13-02-1986
			CA 1282724 C	09-04-1991
			DE 3587623 D1	18-11-1993
			DE 3587623 T2	19-05-1994
			DK 341785 A	07-02-1986
			EP 0171218 A2	12-02-1986
			JP 2004712 C	20-12-1995
			JP 7040939 B	10-05-1995
			JP 61047189 A	07-03-1986
			JP 2589941 B2	12-03-1997
			JP 6339375 A	13-12-1994
			NZ 212978 A	29-03-1989
US 4009074	A	22-02-1977	NONE	
US 4316956	A	23-02-1982	BR 8100550 A	18-08-1981
			CA 1152914 A1	30-08-1983
			JP 1227445 C	31-08-1984
			JP 56121487 A	24-09-1981
			JP 58057154 B	19-12-1983
			SE 446741 B	06-10-1986
			SE 8100713 A	07-08-1981
			ZA 8100628 A	31-03-1982